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Kurita

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[54] **TARGET GAME AND COMPONENTS THEREOF**

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[52] **U.S. Cl.** ..... **273/127 R;** 273/122 R; 273/127 D; 273/129 S

[58] **Field of Search** ..... 273/102.1 E, 105.6, 273/102 AP, 127 D, 86 D, 102.1 C, 102.1 D, 101, 119 R, 119 A, 121 R, 121 A, 122 R, 122 A, 129 GA, 127 R, 129 S, 386, 392

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[57] **ABSTRACT**

A target game can be constructed utilizing a support member and a transparent housing or cover mounted on the support member so as to enclose an elongated, enlarged area. A target is movably mounted on a guide rail within this area so as to be capable of being moved between the ends of a path. A spring is located on the support member for moving the target from adjacent to one end of the path to adjacent to the other end. An escapement structure consisting of parts mounted on the support and on the target controls such movement so that the target member only moves incrementally each time it is engaged by a projectile. A shooting structure is pivotally mounted on the support so as to be accessible from the exterior of the housing. This shooting structure includes a hollow tube within which there is carried a plunger capable of being manipulated so as to shoot projectiles. A feed passage leads into this tube for conveying projectiles into the interior of the tube when the shooting structure is pivoted so that this feed passage is aligned with a projectile feed channel located generally between the support member and the housing.

2 Claims, 5 Drawing Figures

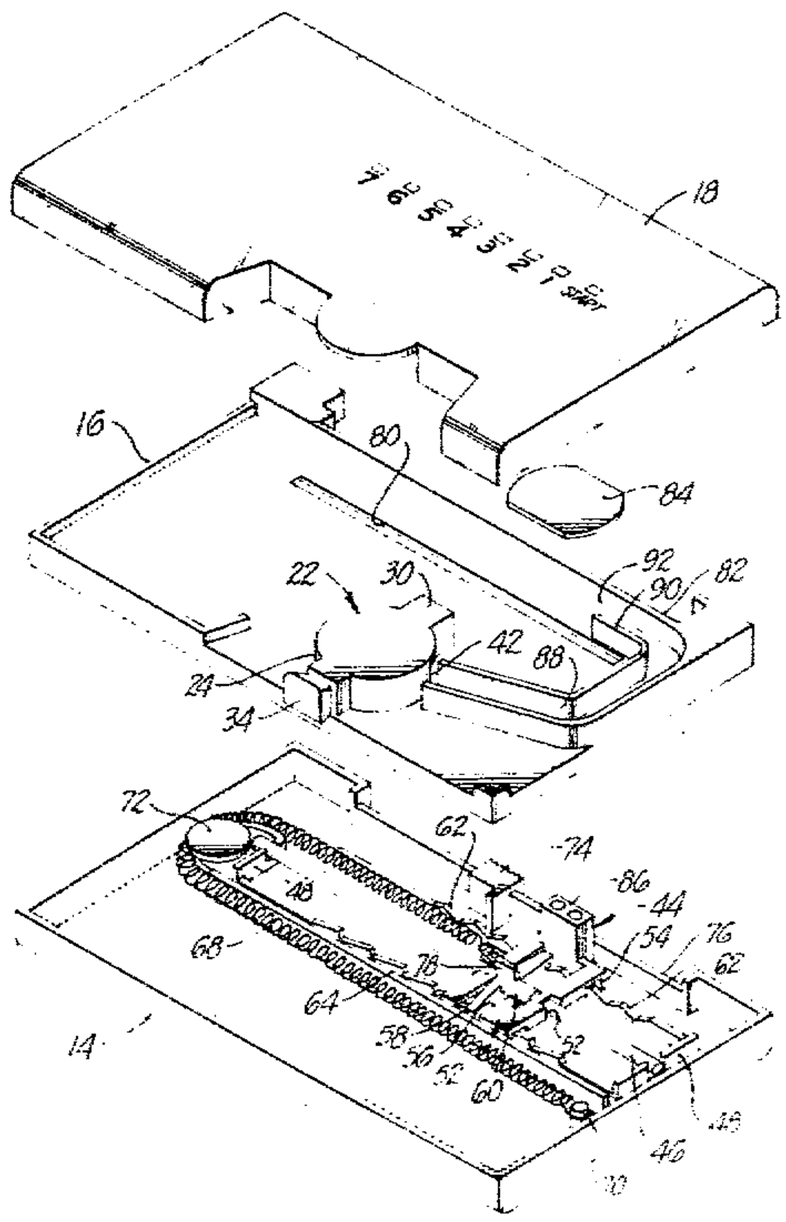


FIG. 1.

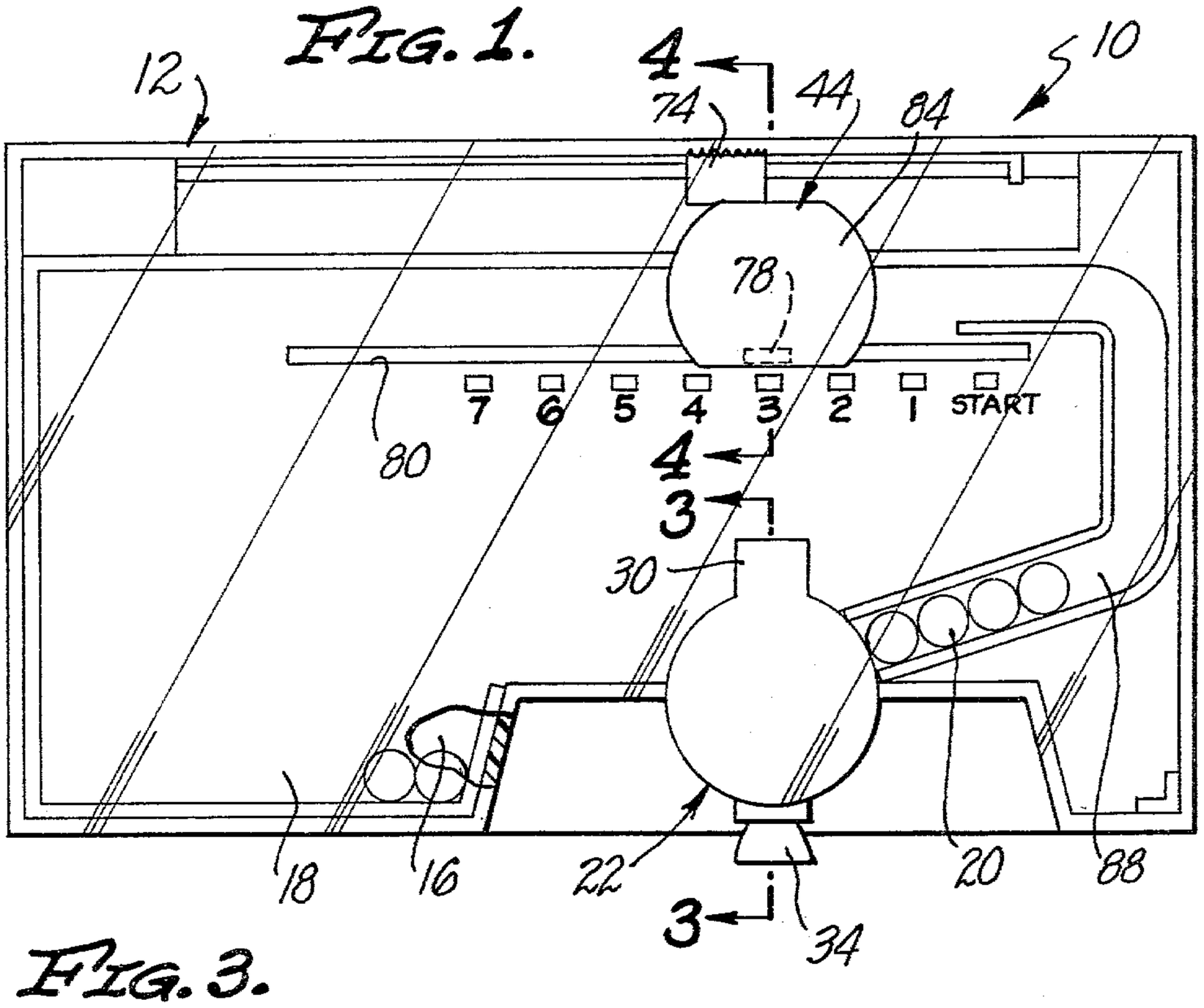


FIG. 3.

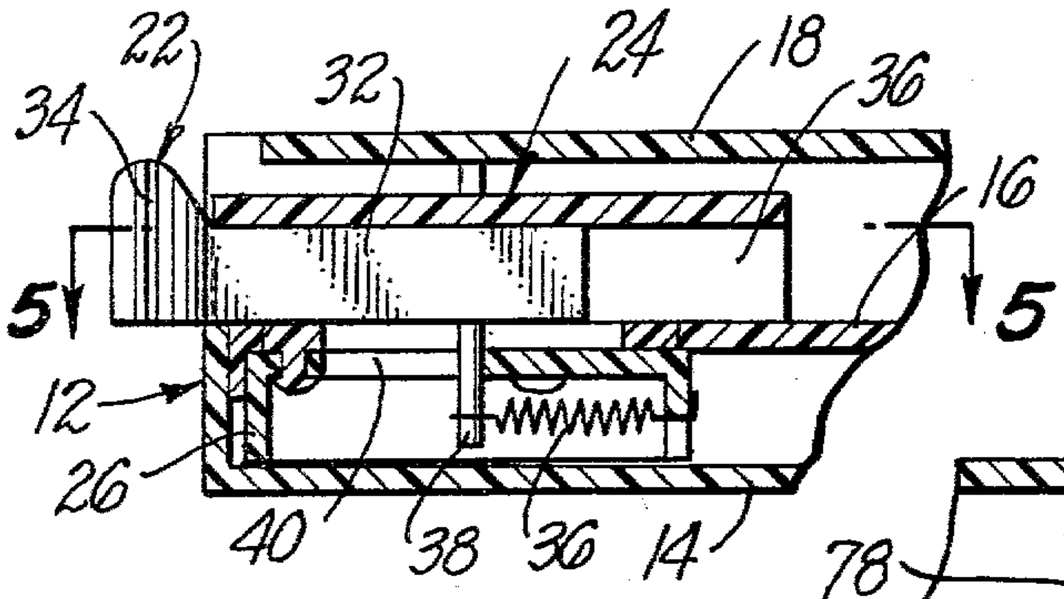


FIG. 4.

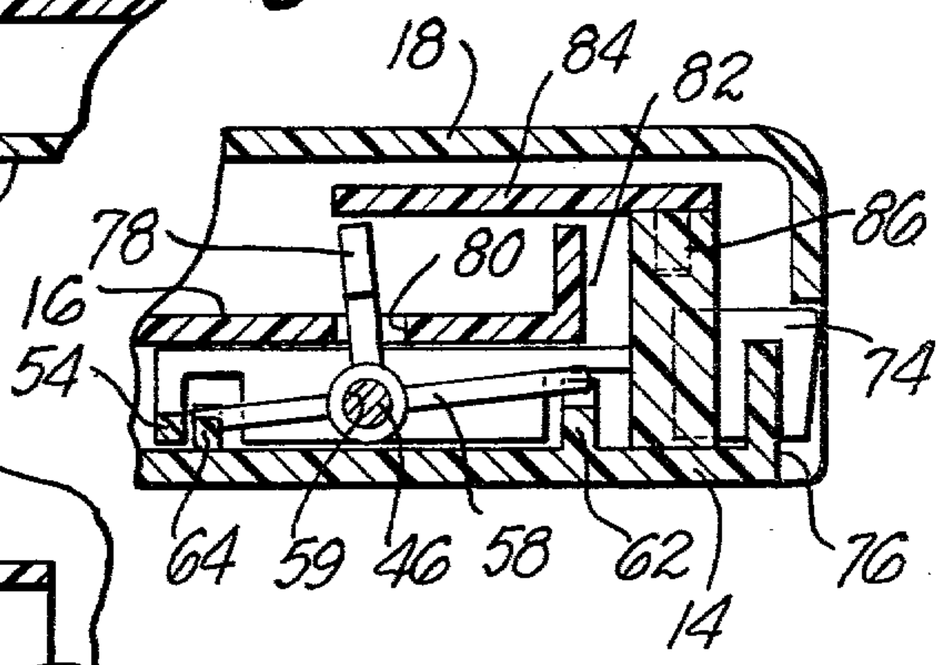


FIG. 5.

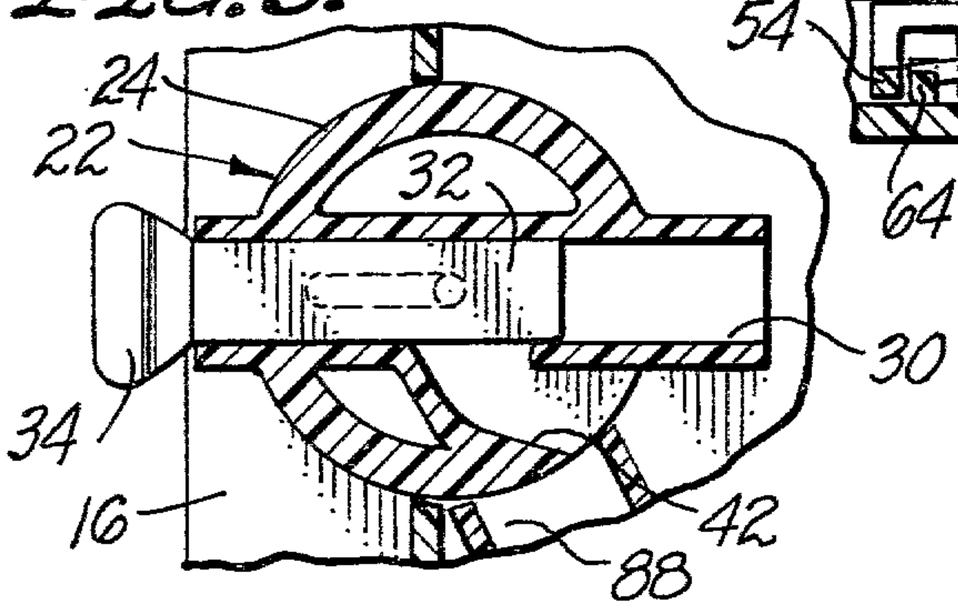
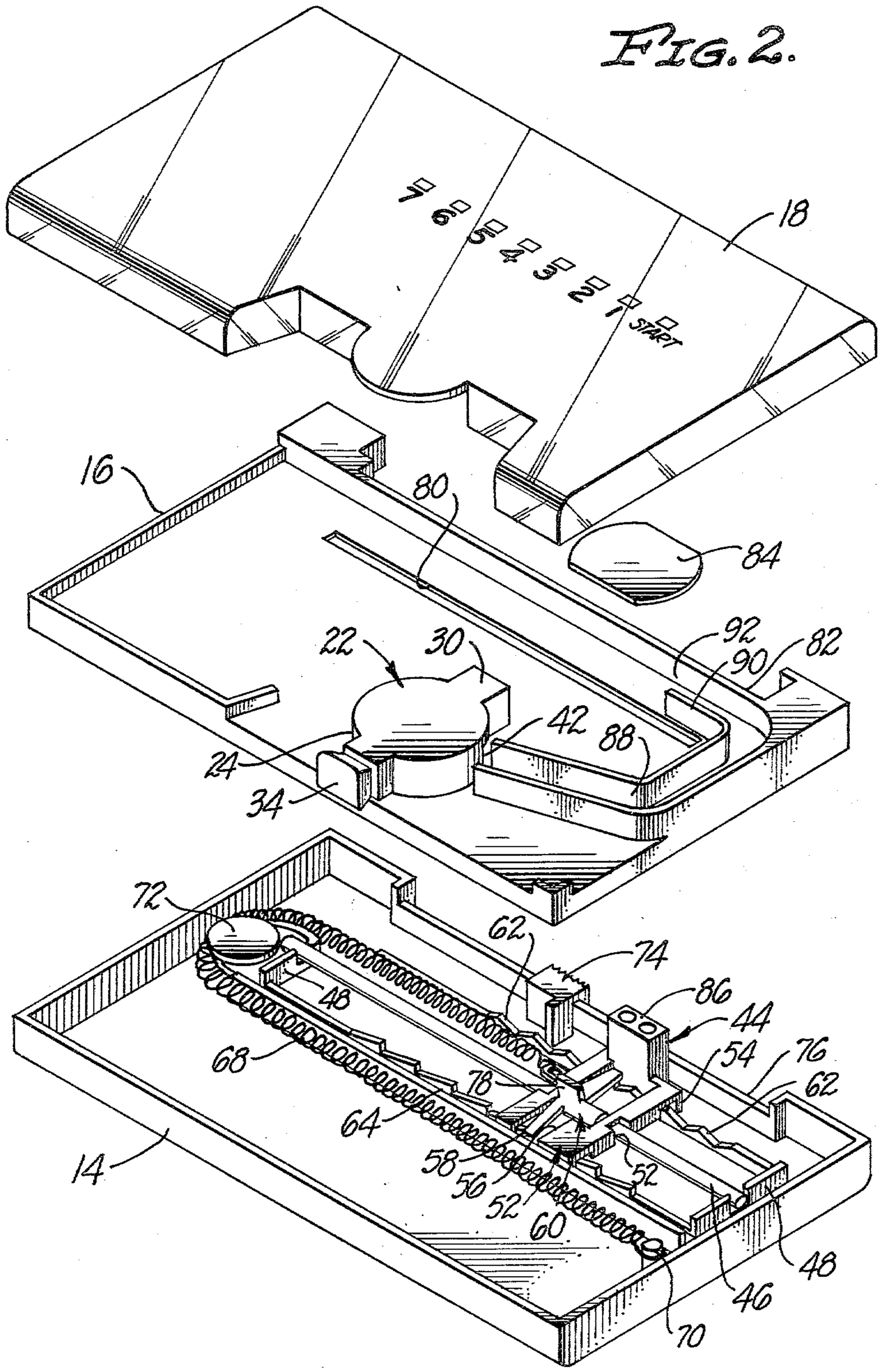


FIG. 2.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TARGET GAME AND COMPONENTS THEREOF

BACKGROUND OF THE INVENTION

The invention set forth in this specification pertains to new and improved target games and components for such games.

It is well known that there are many different types of target games. Normally such games employ two separate components: a shooting mechanism and a target mechanism or structure. These components are normally constructed so as to be capable of being utilized together in such a manner that a projectile propelled or shot by the shooting mechanism indicates whether or not the shooting mechanism has or has not been used in the intended manner by either marking the target in one manner or another or by being retained by the target in one manner or another, or by actuating the target in one manner or another.

The target games of the present invention employ a target apparatus of the latter type having a target which is adapted to be actuated by a projectile. Such target apparatuses have been constructed in a wide variety of manners. Most commonly they have been constructed so as to utilize either a specific lever or similar structure mounted in a fixed location or mounted on a belt or similar type movable structure so as to be capable of being pivoted when actuated during the movement of the belt or a similar structure. The precise shooting mechanism employed with any specific such actuated target apparatus will of course vary depending upon the nature of the particular target game involved. Common firearms are on occasion used with such games. When such games are to be employed with children it is more conventional to utilize a spring-loaded plunger type mechanism for propelling a ball serving as the projectile.

At the present time it is considered that target apparatuses of a type adapted to be actuated by a projectile as a target is moved from one location to another tend to be unnecessarily complex and expensive. This tends to preclude such target apparatuses from being utilized in comparatively small, inexpensive toys. The use of such target apparatuses in such toys is highly desirable because of the established amusement values of target apparatuses in which a target is moved along a path. Also it is considered that the shooting mechanisms employed with prior target games for shooting projectiles such as balls are comparatively undesirable for use in small games in which a target is moved because they do not adequately provide for movement of the shooting mechanism out of a shooting position after such a mechanism is actuated.

SUMMARY OF THE INVENTION

It is believed it will be apparent from the preceding that the invention is intended to provide new and improved components—more specifically, a new and improved movable target apparatus and a new and improved shooting mechanism—for use in target games. The invention is also intended to provide new and improved target games employing such components in which the components cooperate with one another so as to provide an effective, complete target game mechanism or structure. Further objects of the invention are to provide such games and components which are relatively inexpensive to construct, which are easily and conveniently manufactured, and which are capable of operating reliably over a prolonged period. All of these factors are important in providing comparatively inexpensive target games and components of a size permitting such games and components to be utilized either as or as parts of comparatively small toys.

In accordance with this invention a target apparatus which includes a support member, target means movably mounted on the support member so as to be capable of being moved along a path is provided with the improvement which comprises:

motive means connecting to the target means for moving the target means along the path from adjacent to a first end thereof to adjacent to a second end thereof, escapement means having a ratchet means and an escapement lever means for controlling the motion of the target means along the path from adjacent to the first end thereof to adjacent to the second end thereof, the ratchet means being mounted on the support and the escapement lever being mounted on the target means, the escapement lever means being responsive to the target means being engaged by a projectile so as to permit the motive means to incrementally advance the target means along the path from adjacent to the first end thereof to adjacent to the second end thereof in successive increments each time the target means is engaged by a projectile.

In accordance with this invention such a target apparatus is preferably located within the space between the support member and a housing or cover so as to be located opposite and away from a shooting mechanism. In accordance with this invention a shooting mechanism including a hollow tube, a plunger slidable within the tube and extending to the exterior of the tube and spring means for biasing the plunger toward the interior of the tube is provided with the improvement which comprises: a rotatably mounted carrier, the tube being located on the carrier so as to be rotatable therewith; said carrier including a feed passage leading into the tube from the exterior of the carrier and intersecting the tube between the ends of the tube in a position in which a projectile such as a ball can move into the interior of the tube through the feed passage when the plunger is moved generally away from the tube so as to place the spring means in a position where it will automatically return the plunger so as to cover the intersection between the tube and the feed passage.

BRIEF DESCRIPTION OF THE DRAWING

Because of the nature of the invention it is considered that it is best more fully described with reference to the accompanying drawing in which:

FIG. **1** is a top plan view of a presently preferred embodiment or form of a target game of the invention;

FIG. **2** is an exploded view in which parts of the target game are illustrated in isometric projection;

FIG. **3** is a partial cross-sectional view at an enlarged scale taken at line **3—3** of FIG. **1**;

FIG. **4** is a partial cross-sectional view at an enlarged scale taken at line **4—4** of FIG. **1**; and

FIG. **5** is a partial cross-sectional view taken at line **5—5** of FIG. **3**.

It will be realized that the particular structure illustrated embodies concepts or principles as are verbally expressed in the appended claims forming a part of this specification. Those skilled in the design and construction of mechanical toys will easily realize that these

concepts or principles can be easily employed through the use of routine skill in a wide variety of differently appearing and somewhat differently constructed target apparatuses, shooting mechanisms and complete target games.

DETAILED DESCRIPTION

In the drawing there is shown a target game **10** which is constructed so as to utilize a support member **12** consisting of a tray-like base **14** and a floor **16** supported on the base **14** so that there is space between this base **14** and the floor **16**. The support member **12** is adapted to be covered by a transparent cover or housing **18** which is designed to prevent the possible loss or misplacement of various balls **20** serving as projectiles in connection with the use of this game **10**.

A shooting mechanism **22** is incorporated within this game **10**. This particular shooting mechanism **22** includes a cylindrical carrier **24** provided with a cylindrical base **26** of slightly larger diameter than the carrier **24** itself. A cylindrical opening **28** of slightly larger diameter than the carrier **24** and of lesser diameter than the base **26** is provided in the floor **16** so that the entire shooting mechanism **22** can be retained in place by virtue of the base **26** fitting between the floor **16** and the base **14** in such a manner that it can be rotated about its axis.

This carrier **24** supports an elongated tube **30** extending from the carrier **24** into the space between the housing **18** and the floor **16**. A conventional plunger **32** is slidably mounted in the tube **30** so as to be accessible from the exterior of the housing **18**. This plunger **32** includes the usual enlarged head **34** which is adapted to be manually manipulated in order to distend a spring **36** during the use of the shooting mechanism **22**. The spring **36** is mounted between a projection **38** on the plunger **32** fitting within a slot **40** in the bottom of the tube **30** and the interior of the base **26**. If desired, of course, other equivalent structures can be employed.

The shooting mechanism **22** is provided with a feed passage **42** extending from the periphery (not separately numbered) of the carrier **24** into the tube **30** intermediate the ends (not separately numbered) of this tube **30**. This feed passage **42** is located so that when the plunger **32** is withdrawn from the interior of the tube **30** to the maximum extent possible because of the engagement of the projection **38** with the slot **40** a ball **20** can enter the interior of the tube **30** so as to be propelled across the floor **16** when the plunger **32** is released.

During the utilization of the game **10** the shooting mechanism **22** is manipulated so as to be turned in order to be directed toward a target mechanism or apparatus **44** which is located generally along the portions of the game **10** remote from the shooting mechanism **20**. This target mechanism **44** includes an elongated rod **46** serving as a guide rail mounted on lugs **48** on the base **14**. A small carriage **50** including aligned openings **52** is located so that these openings **52** are intersected by this rod **46**. The carriage **50** is supported in this manner so that it can be moved along a linear path corresponding to the length of the rod **46**. Preferably this carriage **50** includes terminal legs **54** engaging the base **14** so as to be slidably supported against rotation. This carriage **50** is also provided with a top opening **56** utilized to carry an escapement lever **58**.

The escapement lever **58** forms a part of a double ratchet escapement **60** including two ratchet racks **62** and **64**. These racks **62** and **64** are located on the base **14** parallel to the rod **46**. The rack **64** is formed so that the vertical walls of its teeth are on the right sides of these teeth as viewed in FIG. **2**. This is important as far as the operation of the lever **58** is concerned. This lever **58** is provided with a centrally located opening **59** extending around the rod **46** so that it may be rocked back and forth during the use of the complete escapement **60** and so that it in effect is carried by or supported by the carriage **50**.

The operation of this escapement **60** requires that motive power be provided to the carriage **50** in order to move the carriage **50** during the use of the target mechanism **44**. Such motive power is provided through the use of a coil spring **68** located beneath the floor **16** so as to extend from a projection **70** on the base **14** around an appropriate guide **72** intended to facilitate the spring **68** expanding and contracting along the rack **62** where it is attached to the carriage **50**.

With this construction a small slider **74** mounted in a conventional manner in an elongated slot **76** on the base **14** generally between this base **14** and the floor **16** may be manually engaged so as to push the slider **74** against the carriage **50** in order to move the carriage **50** from adjacent to the left side of the game **10** as viewed in FIGS. **1** and **2** to adjacent to the right side of the game **10** as viewed in the same figures. When the carriage **50** is moved in this manner the spring **68** will be placed under tension and will have an automatic tendency to move the carriage **50** back toward the left hand side of this game **10** as viewed in FIGS. **1** and **2**.

Such movement is normally prevented by the operation of the escapement **60**. The teeth in the racks **62** and **64** are arranged so that the lever **58** is normally biased when the spring **68** is under tension so as to be engaged by a tooth in the rack **64** to hold the carriage **50** against movement. When the lever **58** is rotated the carriage **50** will be temporarily released from the rack **64** and will be pulled toward the left as viewed in FIGS. **1** and **2** by the spring **68**. As this motion of the carriage **50** occurs the lever **58** will engage the back side of a tooth on the rack **62** in order to pivot the lever **58** so that it will engage the next tooth on the rack **64** to secure the carriage **50** against further movement.

It will be realized this mode of operation involves incremental movement of the carriage **50**. In the game **10** such incremental movement is initiated by individual balls **20** propelled by the mechanism **22** hitting against a projection **78** serving as a target or target member extending upwardly from the lever **58** through a slot **80** in the floor **16**.

With this structure each time a ball **20** is propelled through the use of the shooting mechanism **22** if the shooting mechanism **22** has been properly oriented, such a ball **20** will engage the projection **78** so as to turn the escapement lever **58** about the rod **46** in order to cause an incremental advance of the carriage **50** as indicated in the preceding. Thus, with the game **10** this projection **78** successively changes positions incrementally as the game **10** is used. If desired a further slot **82** may be provided in the floor **16** so that a cover plate **84** may be mounted on a support **86** on the carriage **50** so as to extend over the projection **78**. This cover plate **84** may be conveniently utilized to carry an indicia relative to the game **10**.

In order to use the game **10** effectively a plurality of the balls **20** must of course be employed. Such balls **20** are supplied to the feed passage **42** each time the carrier **24** is rotated so that this feed passage **42** is aligned with

a feed chute **88** defined by internal walls **90** on the floor **16** extending upwardly toward the housing **18**. During the start of the use of the game **10** all of the balls **20** are preferably located within the chute **88** by manipulation of the entire game **10** so that the balls roll into an entrance **92** in this chute **88**. As the game **10** is used various balls which have been propelled by the mechanism **22** accumulate within the interior of the housing **18** remote from the target mechanism **24** by virtue of the fact that the floor **16** is slightly sloped generally toward the shooting mechanism **22**.

It is considered that an important aspect or feature of this invention lies in the fact that balls to be shot through the use of the mechanism **22** can only be "loaded" in the feed passage **42** so as to be available for use in the mechanism **22** when the carrier **24** is rotated so as to align the feed passage **42** with the chute **88**. As a consequence of the orientation of the feed passage **42** as shown this means that a user has to pivot the shooting mechanism **22** periodically as it is used and as the projection **78** is advanced along the line of the slot **80**. This is considered to contribute to the play values of this game **10**.

I claim:

1. A target apparatus which includes

a support member, target means movably supported on said support member so as to be capable of being moved along a path in which the improvement comprises:

motive means connected to said target means for moving said target means along said path from adjacent to a first end thereof to adjacent to a second end thereof,

escapement means having a ratchet means and a pivotally mounted escapement lever means for controlling the motion of said target means along said path from adjacent to the first end thereof to adjacent to the second end thereof,

said ratchet means being mounted on said support and said escapement lever means being movably mounted on said target means,

said ratchet means including two ratchet racks, each of which is located parallel to said path, one of said racks being located so that the vertical walls of its teeth face toward said first end, the other of said racks having teeth shaped so as to pivot said escapement lever means into engagement with the first of said racks,

said escapement lever means being pivotally mounted on said target means so as to be capable of being pivoted between positions in which said lever means engages either one of said racks but does not engage the other,

said escapement lever means being responsive to said target means being engaged by a projectile so as to permit said motive means to incrementally advance said target means along said path from adjacent to the first end thereof to adjacent to the second end thereof in successive increments each time said target means is engaged by a projectile.

2. A target apparatus as claimed in claim **1** wherein:

said escapement lever means is capable of moving during movement of said target means so as to accommodate said target means being moved from adjacent to the second end of said path to adjacent to the first end of said path,

said target means includes a carriage,

said support member includes guide rail means engaging said carriage so that said carriage can only move along a linear path,

said motive means comprises a spring connecting said target means to said support member.

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